

Appl. No. : 09/586,666
Filed : June 1, 2000

AMENDMENTS TO THE CLAIMS

1-10. (Cancelled).

11. (Currently amended) A prosthetic foot for providing a smooth and generally life-like response to a wearer, comprising:

 a foot plate comprising a plurality of symmetrically arranged spaced elongated

 toes;

 an ankle plate positioned above said foot plate; and

 a compressible block between said foot plate and said ankle plate and in mechanical communication with said foot plate and said ankle plate for transmitting forces imparted thereon by said foot plate and said ankle plate such that there is a smooth and natural rollover between heel-strike and toe-off as energy is cyclically stored and released in said prosthetic foot, said block having exposed sides coated with a sealant.

12. (Previously presented) The prosthetic foot of Claim 11, wherein said foot plate has a generally curvilinear shape.

13. (Previously presented) The prosthetic foot of Claim 11, wherein said foot plate is capable of flexing along its length.

14. (Previously presented) The prosthetic foot of Claim 11, wherein said foot plate comprises a vinyl ester based sheet molding compound.

15. (Previously presented) The prosthetic foot of Claim 11, wherein said toes of said foot plate are slightly upwardly curved.

16. (Previously presented) The prosthetic foot of Claim 11, wherein said foot plate comprises a middle toe and two outer toes.

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17. **(Previously presented)** The prosthetic foot of Claim 16, wherein said outer toes are slightly inwardly curved.

18. **(Previously presented)** The prosthetic foot of Claim 11, wherein said ankle plate has an anterior section inclined in the direction towards said foot plate.

19. **(Previously presented)** The prosthetic foot of Claim 11, wherein said ankle plate is capable of flexing along its length.

20. **(Previously presented)** The prosthetic foot of Claim 11, wherein said ankle plate comprises a vinyl ester based sheet molding compound.

21. **(Previously presented)** The prosthetic foot of Claim 11, further comprising a connector coupled to said ankle plate for facilitating attachment of said prosthetic foot to a socket or pylon of the wearer.

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22. **(Previously presented)** The prosthetic foot of Claim 11, further comprising a strap generally circumscribing said foot plate, said ankle plate and said block to control the stretching of said block.

23. **(Previously presented)** The prosthetic foot of Claim 11, wherein said block comprises a downwardly and outwardly sloping front face.

24. **(Previously presented)** The prosthetic foot of Claim 11, wherein said block comprises a downwardly and inwardly sloping rear surface.

25. **(Previously presented)** The prosthetic foot of Claim 11, wherein said block comprises a monolithic element.

26. **(Previously presented)** The prosthetic foot of Claim 11, wherein said block comprises polyurethane foam.

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27. **(Previously presented)** The prosthetic foot of Claim 11, wherein said block comprises cellular foam.

28. **(Previously presented)** The prosthetic foot of Claim 11, wherein said block has a density between about 150 kg/m³ to about 1500 kg/m³.

29. **(Previously presented)** The prosthetic foot of Claim 11, wherein said block has a density between about 300 kg/m³ to about 600 kg/m³.

30. **(Canceled).**

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31. **(Previously presented)** The prosthetic foot of Claim 11, further comprising an outer cosmesis housing said foot plate, said ankle plate and said block.

32. **(Canceled)**

33. **(Currently amended)** The prosthetic foot of Claim 56 32, wherein said toe region of said cosmesis comprises a reinforcement strap.

34. **(Currently amended)** The prosthetic foot of Claim 33, wherein said reinforcement strap has a slot substantially aligned with said slot of said toe region of said cosmesis.

35. **(Previously presented)** An artificial foot for providing a smooth and natural dynamic response during walking or running activities of a lower limb amputee, comprising:

a flexible lower foot plate having an upper surface and a lower surface, said foot plate comprising a toe section, an arch section and a heel section, said toe section comprising a plurality of toes spaced by a plurality of slots and a generally concave upward toe end, said arch section comprising a generally concave downward arch, said heel section comprising a generally concave upward heel end;

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a flexible upper ankle plate having a top surface and a bottom surface and a length shorter than said foot plate, said bottom surface of said ankle plate being substantially parallel to said upper surface of said foot plate, said ankle plate being connected to an attachment member utilizing a bolt for facilitating attachment to a stump or pylon of the amputee, said bolt having a longitudinal axis defining an attachment axis generally aligned with the vertical centerline of an imaginary ankle; and

a resilient ankle member composed of a compressible material and sandwiched between said foot plate and said ankle plate, said ankle member comprising an anterior section and a posterior section, said anterior section having a downwardly and outwardly sloping front face, said posterior section having a wedge shaped cut to form a first rear face substantially parallel with said attachment axis and a second rear face inwardly and downwardly inclined with respect to said first rear face.

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36. **(Previously presented)** The artificial foot of Claim 35, wherein said toes are arranged in a symmetric configuration.

37. **(Previously presented)** The artificial foot of Claim 36, wherein said toes comprise a center toe and two outer toes.

38. **(Previously presented)** The artificial foot of Claim 35, wherein said foot plate and said ankle plate comprise a vinyl ester resin matrix with a substantially randomly arranged fiberglass fiber content.

39. **(Previously presented)** The artificial foot of Claim 35, wherein said ankle plate comprises a through hole in which said bolt resides.

40. **(Previously presented)** The artificial foot of Claim 35, wherein said second rear face of said ankle member contacts said upper face of said foot plate at a contact axis to space said contact axis from said heel end of said foot plate by a predetermined amount to provide enhanced plantar flexion.

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41. **(Previously presented)** The artificial foot of Claim 35, wherein the angle between said first rear face and second rear face of said ankle member is about 60°.

42. **(Previously presented)** The artificial foot of Claim 35, wherein the angle between said first rear face and second rear face of said ankle member is between about 45° to about 75°.

43. **(Previously presented)** The artificial foot of Claim 35, wherein the angle between said front face of said ankle member and a plane parallel to said first rear face of said ankle member is about 15°.

44. **(Previously presented)** The artificial foot of Claim 35, wherein the angle between said front face of said ankle member and a plane parallel to said first rear face of said ankle member is between about 5° to about 45°.

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45. **(Previously presented)** The artificial foot of Claim 35, further comprising a limit strap generally circumscribing a portion of said posterior section of said ankle member to control the maximum expansion of said posterior section of said ankle member.

46. **(Previously presented)** The artificial foot of Claim 45, wherein said limit strap comprises natural tubular nylon webbing.

47. **(Previously presented)** The artificial foot of Claim 45, wherein said limit strap comprises woven nylon.

48-55. **(Canceled).**

56. **(New)** A prosthetic foot for providing a smooth and generally life-like response to a wearer, comprising:

a foot plate comprising a plurality of symmetrically arranged spaced elongated toes;

an ankle plate positioned above said foot plate;

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a compressible block between said foot plate and said ankle plate and in mechanical communication with said foot plate and said ankle plate for transmitting forces imparted thereon by said foot plate and said ankle plate such that there is a smooth and natural rollover between heel-strike and toe-off as energy is cyclically stored and released in said prosthetic foot; and

an outer cosmesis housing said foot plate, said ankle plate and said block, said cosmesis comprising a toe region with a slot to form a big toe substantially aligned with one of said toes of said foot plate.

57. (New) The prosthetic foot of Claim 56, wherein said foot plate has a generally curvilinear shape.

58. (New) The prosthetic foot of Claim 56, wherein said foot plate is capable of flexing along its length.

59. (New) The prosthetic foot of Claim 56, wherein said foot plate comprises a middle toe and two outer toes.

60. (New) The prosthetic foot of Claim 56, wherein said ankle plate has an anterior section inclined in a direction towards said foot plate.

61. (New) The prosthetic foot of Claim 56, wherein said ankle plate is capable of flexing along its length.

62. (New) The prosthetic foot of Claim 56, wherein said toe region of said cosmesis comprises a reinforcement patch.

63. (New) The prosthetic foot of Claim 62, wherein said reinforcement patch has a slot substantially aligned with said slot of said toe region of said cosmesis.

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64. (New) The prosthetic foot of Claim 56, wherein said cosmesis has an inner sole that seats said foot plate.

65. (New) The prosthetic foot of Claim 56, wherein said cosmesis has an inner slot at said toe region that receives said toes of said foot plate.

66. (New) The prosthetic foot of Claim 56, wherein said cosmesis comprises a urethane foam.

67. (New) The prosthetic foot of Claim 66, wherein said foam has a molded density of about 25 lb/ft³.

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68. (New) The prosthetic foot of Claim 56, wherein said block comprises a downwardly and outwardly sloping front face.

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69. (New) The prosthetic foot of Claim 56, wherein said block comprises a downwardly and inwardly sloping rear surface.

70. (New) A prosthetic foot for providing a smooth and generally life-like response to a wearer, comprising:

 a foot plate comprising a plurality of symmetrically arranged, spaced elongated toes, each of the toes having geometrically substantially the same shape;

 an ankle plate positioned above said foot plate and spaced from said foot plate over an entire length of said ankle plate; and

 a compressible block between said foot plate and said ankle plate and in mechanical communication with said foot plate and said ankle plate for transmitting forces imparted thereon by said foot plate and said ankle plate such that there is a smooth and natural rollover between heel-strike and toe-off as energy is cyclically stored and released in said prosthetic foot, said compressible block comprising substantially the sole means of support and connection between said ankle plate and said foot plate.

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71. (New) The prosthetic foot of Claim 70, wherein said foot plate has a generally curvilinear shape.

72. (New) The prosthetic foot of Claim 70, wherein said foot plate is capable of flexing along its length.

73. (New) The prosthetic foot of Claim 70, wherein said foot plate comprises a middle toe and two outer toes.

74. (New) The prosthetic foot of Claim 70, wherein said ankle plate is capable of flexing along its length.

75. (New) The prosthetic foot of Claim 70, wherein said ankle plate is shorter than said foot plate.

76. (New) The prosthetic foot of Claim 70, wherein said block comprises polyurethane foam.

77. (New) The prosthetic foot of Claim 70, wherein said block comprises cellular foam.

78. (New) The prosthetic foot of Claim 70, wherein said block has a density between about 150 kg/m³ to about 1500 kg/m³.

79. (New) The prosthetic foot of Claim 70, wherein said block has a density between about 300 kg/m³ to about 600 kg/m³.